

**CONFIDENTIAL**

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




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Attention: 

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Gentlemen:

As you probably know, two samples of the  crystal holders, which I discussed with you on my recent visit to Washington, were evaluated at the Material Laboratory, New York Naval Shipyard on 14 November 1946. The crystal mounts were tested by  of the Material Laboratory and . The tests were carried out with a Microwave Associates 1N23B crystal and a UG-119/U standard crystal mount. The following results were obtained for tangential sensitivity (power level at which signal plus noise equals twice noise), all readings being db below a milliwatt.

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<u>Freq.</u> <u>Mc/s</u>	<u>UG-119/U</u>	<u>AEL Mount</u> <u>500-1000 Mc/s</u>
500	48	51.5
600	48	54
700	46	54.5
800	48	54
900	48	57
1000	47.5	53

<u>Freq.</u> <u>Mc/s</u>	<u>UG-119U</u>	<u>AEL Mount</u> <u>1000-2000 Mc/s</u>
1000	48.5	51
1100	45	53
1200	*	*
1300	49	56.5
1400	48.5	56.5
1500	48.5	54
1600	*	*
1700	*	*
1800	45	54
1900	46.5	55
2000	47.5	54

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\* (No readings could be taken at 1200, 1600, 1700 Mc/s due to the generator being faulty)

The data taken shows that for the 500-1000 Mc/s band, the improvement in tangential sensitivity is 3.5 db at 500 Mc/s, 6 db at 600 Mc/s, and 5.5 db or more over the rest of the band. For the 1000 to 2000 Mc/s band, the improvement is 2.5 db at 1000 Mc/s, 8 db at 1100 Mc/s, and 6.5 db or more over the rest of the band.

One interesting point arises from these tests. Our work was done with Sylvania 1N23b's and Microwave Associates 408A's which showed very good uniformity in impedance; this is necessary if a tuned mount is to work with any crystal of a lot. Of interest is the fact that the Microwave Associates 1N23B behaved exactly like the Sylvania 1N23b's which we had tested; this means that the tuned mount is good for 1N23b's of at least two manufacturers and is probably good for all 1N23b's regardless of manufacturer.

Please note that we are at present developing crystal holders for the higher frequency ranges up to and including 10,000 megacycles. These should be ready for demonstration in the near future.

I trust that you will also receive a report of this evaluation from the Material Laboratory. If you desire any further information regarding our crystal mounts for possible Navy application we will be very happy to discuss it with you. You may contact us through our

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Sincerely yours,

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Secretary

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